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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,053	03/17/2005	Tatsuya Maruo	0171-1188PUS1	7032
2292	7590	03/13/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			THOMAS, ERIC W	
PO BOX 747			ART UNIT	
FALLS CHURCH, VA 22040-0747			PAPER NUMBER	
			2831	

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/528,053

Applicant(s)

MARUO ET AL.

Examiner

Eric Thomas

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/05</u> . | 6) <input type="checkbox"/> Other: _____ |

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

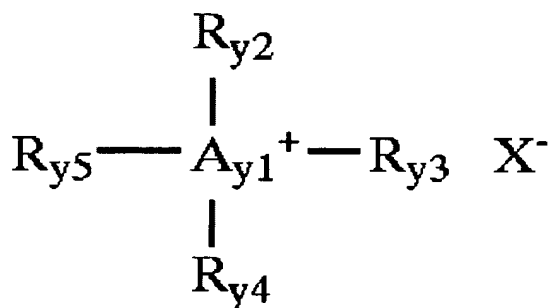
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3/1, 4/3/1, 5/1, ^{ish}15/1, 17/1 are rejected under 35 U.S.C. 102(e) as being anticipated by Wariishi (US 6,841,299). -B* 3/6/06

Wariishi discloses a nonaqueous electrolyte characterized by containing an ionic liquid which has general formula (1) below and is liquid at not higher than 50 degrees C



(1)

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wherein Ry2 to Ry5 are each independently an alkyl group of 1 to 5 carbons, Ay1 is a nitrogen or phosphorous atom, and Y is a monovalent anion; and an ion-conductive polymer.

Regarding claim 3/1, Wariishi discloses the electrolyte comprises a lithium salt.

Regarding claim 4/3/1, Wariishi discloses the lithium salt is LiBF₄.

Regarding claim 5/1, Wariishi discloses the ion-conductive polymer is a monocrystalline polymer.

Regarding claim 12/1, Wariishi discloses the ionic liquid is liquid at not higher than 25 degrees C.

Regarding claim 15/1, Wariishi discloses Y is BF₄⁻.

Regarding claim 17/1, Wariishi discloses the electrolyte is formed in a nonaqueous electrolyte secondary cell comprising a positive electrode which contains lithium containing double oxide, a negative electrode which contains a carbonaceous material capable of lithium ion insertion and extraction, a separator between the positive and negative electrodes (col. 18 lines 55-65), and the nonaqueous electrolyte.

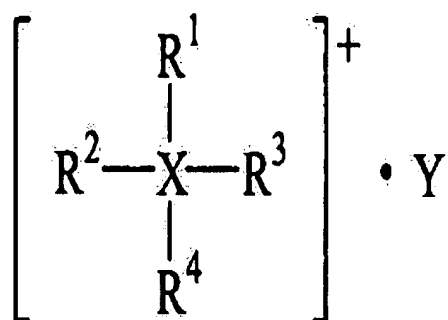
4. Claims 1-15, 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Maruo et al. (US 2006/0035137)

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

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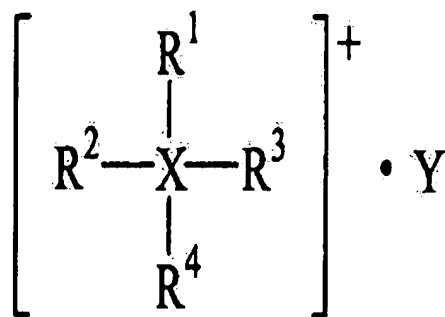
the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Maruo et al. disclose a nonaqueous electrolyte characterized by containing an ionic liquid which has general formula (1) below and is liquid at not higher than 50 degrees C.



wherein R1 to R4 are each independently an alkyl group of 1 to 5 carbons, X is a nitrogen or phosphorous atom, and Y is a monovalent anion; and an ion-conductive polymer.

Regarding claim 2, Maruo et al. disclose a nonaqueous electrolyte which is characterized in that it is obtained by curing a composition containing an ionic an ionic liquid which has general formula (1) below and is liquid at not higher than 50 degrees C.



wherein R1 to R4 are each independently an alkyl group of 1 to 5 carbons, X is a nitrogen or phosphorous atom, and Y is a monovalent anion; a compound having a reactive double bond on the molecule; and an ion-conductive polymer.

Regarding claim 3, Maruo et al. disclose the electrolyte contains a lithium salt.

Regarding claim 4, Maruo et al. disclose the lithium salt is LiBF₄.

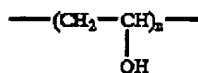
Regarding claim 5, Maruo et al. disclose the ion conductive polymer is a noncrystalline polymer (see materials).

Regarding claim 6, Maruo et al. disclose the ion conductive polymer has a relative permittivity at 25 degrees C and 1 MHz of 5 to 50 (see materials).

Regarding claim 7, Maruo et al. disclose the ion conductive polymer is thermoplastic polyurethane.

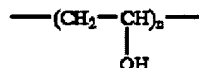
Regarding claim 8, Maruo et al. disclose the ion-conductive polymer is a hydroxyalkyl polysaccharide.

Regarding claim 9, Maruo et al. disclose the ion conductive polymer is a polymeric compound having an average degree of polymerization of at least 20 and containing polyvinyl alcohol groups of general formula (2) below (paragraph 70)



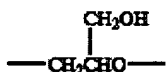
wherein n is a number from 20 to 10,000, some or all of the hydroxyl groups on the polyvinyl alcohol units being substituted with oxyalkylene-bearing units having an average molar substitution of at least 0.3 (paragraph 70).

Regarding claim 10, Maruo et al. disclose the ion-conductive polymer is a polymeric compound having an average degree of polymerization of at least 20 and containing polyvinyl alcohol of the general formula (2) below

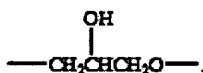


wherein n is a number from 20 to 10,000, some or all of the hydroxyl groups on the polyvinyl alcohol units being substituted with cyano-substituted monovalent hydrocarbon groups.

Regarding claim 11, Maruo et al. disclose the ion conductive polymer is a polymeric compound having units of formula (3) and units of formula (4),



(3)



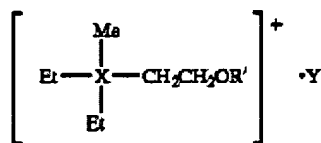
(4)

wherein at least 10% of the end groups on the molecular chain are capped with R⁵CO- groups (R⁵ being a substituted or unsubstituted monovalent hydrocarbon group)

Regarding claim 12, Maruo et al. disclose the ionic liquid at not higher than 25 degrees C.

Regarding claim 13, Maruo et al. disclose that X is a nitrogen atom, R' is methyl, and n is 2.

Regarding claim 14, Maruo et al. disclose that the ionic liquid has general formula (5) below



(5)

Regarding claim 15, Maruo et al. disclose the Y is BF_4^- .

Regarding claim 17, Maruo et al. disclose a nonaqueous electrolyte secondary cell comprising a positive electrode which contains a lithium containing double oxide, a negative electrode which contains a carbonaceous material capable of lithium ion insertion and extraction or contains metallic lithium, a separator between the positive and negative electrodes, and a nonaqueous electrolyte; which nonaqueous secondary cell is characterized in that the nonaqueous electrolyte is a nonaqueous electrolyte according to claims 1 & 2.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being obvious over Maruo et al. (US 2006/0035137) in view of Yoshida (US 2005/0231894).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Regarding claim 16, Maruo et al. disclose the claimed invention except for the electrolyte is used in an electric double layer capacitor, wherein the electric double layer

capacitor comprising a pair of polarizable electrodes, a separator between the polarizable electrodes and a nonaqueous electrolyte.

Yoshida et al. teach that it is known in the art to use a battery nonaqueous electrolyte in an electric double layer capacitor. It would have been obvious to a person of ordinary skill in the art at the time the invention was to form the electrolyte of Maruo in an electric double layer capacitor, wherein the electric double layer capacitor comprises a pair of polarizable electrodes and a separator formed between the electrodes, since such a modification would form a capacitor having excellent low temperature characteristics and stability.

Claim 16/1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wariishi (US 6,841,299) in view of Yoshida (US 2005/0231894).

Regarding claim 16, Wariishi discloses the claimed invention except for the electrolyte is used in an electric double layer capacitor, wherein the electric double layer capacitor comprising a pair of polarizable electrodes, a separator between the polarizable electrodes and a nonaqueous electrolyte.

Yoshida et al. teach that it is known in the art to use a nonaqueous electrolyte in an electric double layer capacitor. It would have been obvious to a person of ordinary skill in the art at the time the invention was to form the electrolyte of Maruo in an electric double layer capacitor, wherein the electric double layer capacitor comprises a pair of polarizable electrodes and a separator formed between the electrodes, since such a modification would form a capacitor having an electrolyte with excellent charge-transporting properties (ionic conductivity).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Thomas whose telephone number is 571-272-1985. The examiner can normally be reached on Monday - Friday 6:30 AM - 3:45 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ewt

 3-6-06
ERIC W. THOMAS
PRIMARY EXAMINER